IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants: B. Mark Hirst	CERTIFICATE OF FACSIMILE TRANSMISSION I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office, Alexandria, Virginia on the date below.
Title: SNUBBER CIRCUIT	*Todd A. Rathe* (Printed Name)
Appl. No.: 10/780,927	(Signature)
Filing Date: 02/17/2004	(Date of Deposit)
Examiner: Patel, Rajnikant B.	
Art Unit: 2828	

REPLY BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Reply Brief is in response to the Examiner's Answer mailed on September 5, 2008. For the following reasons, Appellant respectfully requests that the Board reverse all claim rejections and indicate that a Notice of Allowance respecting all pending claims be issued.

It is well settled law that for a claim to be anticipated, the prior art must disclose each and every element of the claim being rejected. Likewise, it is well settled law that a prima facie case of obvious requires a valid suggestion or motivation to modify a reference or combine references, wherein the combined references teach or suggest all of the claim limitations. As noted in the previous Appeal Brief filed on June 2, 2008, the prior art or combinations of prior art relied upon by the Examiner to reject the appealed claims do not disclose what is being claimed. The Examiner's Answer simply glosses over the actual claim limitations

and relies upon mischaracterizations about what the prior art actually discloses. For example, the Examiner argues:

> In short applicant invention is nothing but utilizes biasing circuit to reducing switching losses and applied art work on same principle of storage of captured energy and utilize that energy to reducing switching losses.

(Examiner's Answer, page 9).

Neither the Examiner's response summary cited above nor the Examiner's specific attempt at rebuttal address the actual claim limitations or accurately characterize what is disclosed by the prior art. On top of this, the Examiner's Answer **completely fails to provide any response to** Appellants' points regarding the improper rejection of claims **8, 33, 46, 47, 50, 53, 56 and 57**. For sake of completeness, Appellants' previous points are presented below followed by a response to the Examiner's Answer.

I. The Examiner's Rejection of Claims 1, 7 and 52 under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 5,923,152 (Guerrera) Should Be Reversed Because Guerrera Does Not Disclose Every Limitation of Each of the Claims.

The claimed invention is not anticipated under § 102 unless each and every element of the claimed invention is found in the prior art. (Hydratech, Inc. v. Monochronal Antibodies, Inc., Fed. Cir. 1986). Accordingly, the rejection of these claims under 35 U.S.C. § 102(b) is improper and should be reversed.

A. Claim 1

Independent Claim 1 is directed to an apparatus which includes a biasing snubber circuit. The biasing snubber circuit is coupled to an AC switching circuit and a control circuit to capture energy from a circuit switched by the switching circuit. The snubber circuit provides at least a portion of the captured energy to bias the control circuit.

Guerrera fails to disclose (1) a biasing snubber circuit coupled to an AC switching circuit or (2) a biasing snubber circuit that provides at least a portion of captured energy to bias a control circuit that is coupled to an AC switching circuit.

First, the snubber circuit of Guerrera is NOT coupled to an AC switching circuit. In contrast, the snubber circuit disclosed by Guerrera is merely connected to a DC switching circuit. This is quite evident in Figure 1 which requires a bridge rectifier between the AC source and the rest of the circuit. Although the Examiner asserts that Guerrera discloses the claimed subject matter on an AC switching circuit, this is incorrect. In fact, the circuit disclose by Guerrera could not be used on an AC switching circuit. As one of ordinary skill in the art would recognize, if the circuit shown in Figure 2 of Guerrera were alternatively employed with an AC switching circuit, during the negative half cycle of the AC waveform, diode 66 or switch 40 would experience an uncontrolled voltage causing diode 66 or switch 40 to be destroyed.

Second, Guerrera fails to disclose an apparatus having a snubber circuit that captures energy from a circuit switched by switching circuit and that provides at least a portion of the captured energy to bias a control circuit. In contrast, Guerrera merely discloses a circuit wherein energy captured by a snubber circuit is retransmitted back to its load. The captured energy is not used to bias a control circuit.

The Examiner's Answer Lacks Merit

1. Guerrera does not disclose a biasing snubber circuit coupled to an AC switching and control circuit.

In response to Appellants' original points, the Examiner asserts that Guerrera "clearly" disclosed a biasing snubber circuit coupled to an AC switching circuit and now refers to figure 2, item 40, 50, 70 and column 2, lines 30-40.

However, none of the citations relied upon by the Examiner actually disclose a biasing snubber circuit coupled to an AC switching and control circuit. As noted

above, the snubber circuit disclosed by Guerrera is merely connected to a DC switching circuit. The Examiner appears to be confused as to the differences between an AC switching circuit and an AC power source or AC Main. Those of ordinary skill in art clearly understand this distinction. Although Guerrera discloses an AC power source or AC Main 12 in Figure 1, this is not an AC switching circuit. As noted above, this is evident in the fact that Figure 1 requires a bridge rectifier between the AC source and the rest of the circuit. Moreover, on top of all this, one of ordinary skill in the art would also recognize that the circuit shown in Figure 2 of Guerrera could not be employed with an AC switching circuit because the diode 66 or switch 40 would be destroyed during the negative half cycle of an AC waveform.

2. Guerrera does not disclose at least a portion of captured energy from the snubber circuit being used to bias the control circuit.

In response to Appellants' original points, the Examiner asserts that Guerrera teaches that "the energy captured by biasing capacitor used for reducing losses (column 4, line 5-20)."

However, the Examiner's response fails to even address the actual claim limitations. The limitations of claim 1 require that a portion of the captured energy is used "to bias the control circuit." Claim 1 does NOT simply recite "reducing losses." As previously noted, Guerrera merely discloses a circuit wherein energy captured by the switching circuit is retransmitted back to its load. It is not used to bias a control circuit.

Accordingly, the rejection of claim 1 based upon Guerrera should be reversed. The rejection of claim 7, which depends from claim 1, should be reversed for at least the same reasons.

B. Claim 52

Claim 52 recites an apparatus which includes a switching circuit, a control circuit coupled to the AC switching circuit and a biasing snubber circuit coupled to the switching circuit end of the control circuit to capture energy from a circuit

switched by the switching circuit and to provide at least a portion of the captured energy to bias the control circuit.

As noted above with respect to the rejection of claim 1, Guerrera fails to disclose (1) a biasing snubber circuit connected to an AC switching circuit or (2) a biasing snubber circuit that provides captured energy to bias a control circuit of the AC switching circuit.

In addition to such claim limitations, claim 52 further recites that the switching circuit includes a first transistor and a second transistor, the first transistor and a second transistor having source terminals connected in common.

Guerrera fails to disclose first and second transistors having source terminals connected in common. In direct contrast, Guerrera requires that its switching devices be connected source to drain. For example, switching devices 40 and 46 of Figure 2 are connected source to drain. Switching devices 40 and 46 to not have source terminals connected in common.

The Examiner's Answer Lacks Merit

In response to Appellants' original points, the Examiner simply repeats his argument that Guerrera discloses a switching circuit that includes first and second transistors and refers to figure 2, items 40 and 46.

However, the Examiner's Answer fails to even address the actual claim limitations. Once again, claim 52 does not simply recite a first transistor and a second transistor. In contrast, claim 52 additionally requires that the first transistor and the second transistor to have source terminals connected in common. The Examiner fails to address this limitation or Appellants' previous points that transistors 40 and 46 of Guerrera do not have source terminals connected in common. Accordingly, the rejection of claim 52 should be reversed.

III. The Examiner's Rejection of Claims 31, 34, 35, 37, 39-40 and 43-45 under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No.

6,055,161 (Church) Should Be Reversed Because Church Does Not Disclose Every Limitation of Each of the Claims.

A. Claim 31

Claim 31 recites the first entity storage device and a second energy storage device. Claim 31 also recites circuitry coupled to the first energy storage device to facilitate capturing by the first energy storage device energy of a switching circuit and to facilitate resetting of the first entity storage device. The second energy storage device stores the captured energy and provides at least a portion of the captured energy to a control circuit. In other words, the energy captured from the switching circuit is transferred from the first energy storage device to the second entity storage device. The second energy storage device provides captured energy to a control circuit.

Church fails to disclose (1) the transfer of energy captured from a switching circuit from a first energy storage device to a second energy storage device or (2) providing the captured energy to a control circuit. First, as one of ordinary skill in the art would recognize, the boost converter circuit shown in Figure 2 of Church (relied upon by the Examiner to reject Claim 31) does not transfer captured energy from a switching circuit from a first energy storage device to second energy storage device. Captured energy is not transferred from capacitor 102 to capacitor 104 or vice versa. In contrast, with the circuit shown in Figure 2, capacitors 102 and 104 are simultaneously charged or discharged. The circuit shown in Figure 5 also simultaneously charges and discharges its capacitors.

Second, Church does not provide captured energy to a control circuit. In contrast, any captured energy is provided to the load.

The Examiner's Answer Lacks Merit

In response to Appellants' original points (provided above), the Examiner argues that Church discloses a first storage device item 102 and a second storage

device item 104. The Examiner also refers to column 7, lines 50-70 and column 8, lines 1-5 with regards to transferring energy.

However, the Examiner's answer still fails to address the actual specific claim limitations of claim 31. Claim 31 does not simply recite two energy storage devices. Claim 31 does not simply vaguely recite "transferring energy." As noted above, claim 31 requires (1) the transfer of energy captured from a switching circuit from a first energy storage device to a second energy storage device and (2) providing the captured energy to a control circuit.

The Examiner fails to establish where Church allegedly satisfies these claim limitations. The portions cited by the Examiner do not describe (1) the transfer of energy captured from a switching circuit from a first energy storage device to a second energy storage device and (2) providing the captured energy to a control circuit. One of ordinary skill in the art or even any electrical engineer would clearly understand from the diagram of Figure 2 of Church that Church does not transfer captured energy from capacitor 102 to capacitor 104 or vice versa, but that capacitors 102 and 104 are simultaneously charged or discharged. One of ordinary skill in the art or any electrical engineer would clearly understand that Church does not provide captured energy to a control circuit, but instead provides captured energy to the load. Accordingly, the rejection of claim 31 should be reversed. The rejection of claims 34-35 and 37, which depend from claim 31, should be reversed for at least the same reasons.

B. Claim 35

Claim 35 depends from claim 31 and recites that the second energy storage device provides a bias for the control circuit of the switching circuit.

Church fails to disclose a second energy storage device that provides a bias source for the control circuit of the switching circuit, the same circuit from which energy is captured.

The Examiner's Answer Lacks Merit

In response to Appellants' original points (provided above), the Examiner argues that:

> In regards to other dependent claims 34, 35, 37-38 and 40 claimed components such as diodes, inductor, bias source and their function are also disclosed by applied arts of Guerrera's and Church et al.

(Examiners Answer, page 9).

This response is wholly inadequate. The Examiner's answer does not rebut Appellants' original point that the Examiner has failed to establish a prima facie case of anticipation. Rather, the Examiner simply makes conclusory statements mentioning components without even addressing the actual claim limitations. As noted by Appellants, Guerrera does not disclose a second energy storage device that provides a bias for a control circuit of the switching circuit. Accordingly, the rejection of claim 35 should be reversed for at least this additional reason.

C. Claims 39 and 43

Claim 39 recites a method of supplying power to a control circuit. The method includes capturing energy of a switching circuit in a first energy storage device, providing at least a portion of the captured energy in the first energy storage device to a second energy storage device and providing at least a portion of energy stored on the second energy storage device to power the control circuit.

Claim 43 recites a snubber circuit to power a first circuit. The snubber circuit includes means for capturing energy of a switching circuit in a first energy storage device, means for providing at least a portion of the captured energy in the first energy storage device to a second energy storage device and means for providing at least a portion of energy stored on the second energy storage device to power the control circuit.

Church fails to disclose (1) transferring energy captured from a switching circuit from a first energy storage device to a second energy storage device or (2) providing the captured energy to a control circuit. First, as one of ordinary skill in the

art would recognize, the boost converter circuit shown in Figure 2 of Church (relied upon by the Examiner to reject Claim 31) does not transfer captured energy from a switching circuit from a first energy storage device to second energy storage device. Captured energy is not transferred from capacitor 102 to capacitor 104 or vice versa. In contrast, with the circuit shown in Figure 2, capacitors 102 and 104 are simultaneously charged or discharged.

Second, Church does not provide captured energy to a control circuit. In contrast, any captured energy is provided to the load.

The Examiner's Answer Lacks Merit

In response to Appellants' original points (provided above), the Examiner argues that:

> In regards to other dependent claims 34, 35, 37-38 and 40 claimed components such as diodes, inductor, bias source and their function are also disclosed by applied arts of Guerrera's and Church et al.

(Examiners Answer, page 9).

This response is wholly inadequate. The Examiners answer does not rebut Appellants' original point that the Examiner has failed to establish a prima facie case of anticipation. Rather, the Examiner simply makes conclusory statements mentioning components without even addressing the actual claim limitations. As noted by Appellants, Guerrera does not disclose (1) transferring energy captured from a switching circuit from a first energy storage device to a second energy storage device or (2) providing the captured energy to a control circuit. Accordingly, the rejection of claims 39 and 43 should be reversed for at least this additional reason. The rejection of claims 40 and 44-45, which depend from claims 39 and 43, respectively, should be reversed for at least the same reasons.

D. Claim 45

Claim 45 depends from claim 43 and recites that the first circuit comprises a control circuit for controlling a switching circuit, the same circuit from which energy is captured.

Church fails to disclose a second energy storage device that provides a bias source for the control circuit of the switching circuit, the same circuit from which energy is captured.

The Examiner's Answer Lacks Merit

In response to Appellants' original points (provided above), the Examiner argues that:

> In regards to other dependent claims 34, 35, 37-38 and 40 claimed components such as diodes, inductor, bias source and their function are also disclosed by applied arts of Guerrera's and Church et al.

(Examiners Answer, page 9).

This response is wholly inadequate. The Examiners answer does not rebut Appellants' original point that the Examiner has failed to establish a prima facie case of anticipation. Rather, the Examiner simply makes conclusory statements mentioning components without even addressing the actual claim limitations. As noted by Appellants, Guerrera does not disclose that the first circuit comprises a control circuit for controlling a switching circuit, the same circuit from which energy is captured. Accordingly, the rejection of claim 45 should be reversed for at least this additional reason.

IV. The Examiner's Rejection of Claims 8-9 and 46 under 35 U.S.C. § 103(a) as being as being unpatentable over U.S. Patent No. 5,923,152 (Guerrera) Should Be Reversed Because It Would Not Be Obvious to Modify Guerrera to Include Every Limitation of the Claims.

A. Claim 8

Claim 8 depends from claim 1 and recites:

a first Field Effect Transistor (FET) having a first source, a first gate and a first drain;

a second FET having a second drain, a second source coupled to the first source and a second gate coupled to the first gate;

a first diode having a first anode coupled to the first source and a first cathode coupled to the first drain; and

a second diode having a second anode coupled to the second source and a second cathode coupled to the second drain.

As acknowledged by the Examiner, Guerrera failed to disclose the specific electrical circuit recited in claim 8. As a result, the Examiner attempts to argue that it would simply be obvious to completely reconfigure the circular Guerrera does to meet the limitation of claim 8 "since it has been held that a mere reversal of the essential working part of a device involve only routine skill in the art." (Office Action dated December 31 , 2007, page 4).

The Rejection of claim 8 should be reversed because the Examiner has failed to establish a prima facie case of obviousness. The alleged motivation lacks merit. First, the Examiner has failed to indicate what specific parts one of ordinary skill in the art would allegedly "reverse" in Guerrera.

Second, any rearrangement of "parts" in the circuit of Guerrera would clearly change the principle of operation and attended functioning of the circuit of Guerrera. As set forth in MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE, it is well settled law that "if proposed modification would render the prior art invention they modified unsatisfactory for its intended purpose, then there is no suggestion or motivation make the proposed modification. *In re Gordon*, 733 F.2D 900 (Fed. Cir. 1984). As also noted by MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE, it is well settled law that "if the proposed modification or combination the prior art would change the principle of operation of the prior art invention be modified, the teaching

the reference are not sufficient to render the claims prima facie obvious." *In re Ratti*, 270 F.2d 810 (CCPA 1959).

The Examiner's Answer completely fails to even respond to Appellants' points regarding claim 8. (See Examiner's Answer, pages 8-9).

Accordingly, rejection of claim 8 should be reversed. The rejection of claim 9, which depends from claim 8, should be reversed for at least the same reasons.

B. Claim 46

Claim 46 depends from claim 1 and recites that the AC switching circuit includes a first transistor and a second transistor, wherein the first transistor and the second transistor have source terminals connected in common.

As acknowledged by the Examiner, Guerrera fails to disclose that the switching circuit includes a first transistor and a second transistor, the first transistor and a second transistor having source terminals connected in common. As a result, once again, the Examiner attempts to rely upon the assertion that it would be obvious as a "mere reversal of parts." Once again, the Examiner has failed to establish a prima facie case of obviousness said such a modification would clearly render Guerrera unsatisfactory for its intended purpose and change the principle of operation of Guerrera. (See MPEP 2143.01).

The Examiner's Answer completely fails to even respond to Appellants' points regarding claim 46. (See Examiner's Answer, pages 8-9).

Accordingly, the rejection of claim 46 should be reversed.

V. The Examiner's Rejection of Claims 17-20 under 35 U.S.C. § 103(a) as being as being unpatentable over U.S. Patent No. 5,923,152 (Guerrera) Should Be Reversed Because It Would Not Be Obvious to Modify Guerrera to Include Every Limitation of the Claims.

Claims 17-20 depend from claim 1. For the same reasons discussed above with respect to the rejection of claim 1, the rejection of claims 17-20 should be reversed.

VI. The Examiner's Rejection of Claims 32-33, 36, 41 and 42 under 35 U.S.C. § 103(a) as being as being unpatentable over U.S. Patent No. 6,055,161 (Church) Should Be Reversed Because It Would Not Be Obvious to Modify Church so As to Include Every Limitation of Each of the Claims.

Claims 32-33 and 36 depend from claim 31. Claims 41 and 42 depend from claim 39. The rejection of claims 32-33 and 36 should be reversed for the same reasons discussed above with respect to the rejection of claim 1 under 35 USC 102(b) based upon Church. The rejection of claims 41 and 42 should be reversed for the same reasons discussed above with respect to the rejection of claim 39 under 35 USC 102(b) based upon Church. The rejection of claims 33 and 41 should be reversed for the following additional reason.

Claim 33 recites that the switching circuit is an AC switching circuit. Claim 41 also recites that the switching circuit comprises an AC switching circuit.

Church fails to disclose the snubber circuit of claim 31, wherein the switching circuit is an AC switching circuit as recited in claim 33. In contrast, Church only discloses a boost converter circuit which operates on a DC input and a DC output.

Moreover, it would not be obvious to modify the circuit of Figure 2 of Church to alternatively operate on an alternating current. As one of ordinary skill in the art would recognize, during the negative half cycle of the AC waveform, switch one 114 would be destroyed. This would subsequently result in diodes 106, 108 in 118 also being destroyed. Accordingly, the Examiner has failed to establish a prima facie case of obviousness since such a modification would clearly render Church unsatisfactory for its intended purpose and change the principle of operation of Guerrera. (See MPEP 2143.01).

Moreover, the Examiner has also failed to establish a prima facie case of obviousness by failing to even allege where Church satisfies the limitations of claim 33. The Office Action merely discusses Guerrera in his rejection of claim 33 based upon Church. As noted above with respect to the rejection of claim 1, the circuit of Guerrera can also not be used with an AC switching circuit.

The Examiner's Answer completely fails to even respond to Appellants' points regarding claim 33. (See Examiner's Answer, pages 8-9).

Accordingly, rejection of claims 33 and 41 should be reversed.

VII. The Examiner's Rejection of Claims 47-51 and 53-59 under 35 U.S.C. § 103(a) as being as being unpatentable over U.S. Patent No. 5,923,152 (Guerrera) in view of 5,923,152 (Dan-Harry) Should Be Reversed Because It Would Not Be Obvious to Modify Guerrera based upon Dan-Harry to Include Every Limitation of the Claims.

A. Claims 47 and 53

Claim 47 depends from claim 1 and recites that the AC switching circuit includes a first snubbing capacitor in a first current limiting device. The AC switching circuit is configured to switch the first current limiting device into circuit on the first snubbing capacitor is reset.

Claim 53 recites an apparatus comprising:

> a switching circuit;
>
> a control circuit coupled to the switching circuit; and
>
> a biasing snubber circuit coupled to the switching circuit and the control circuit to capture energy from a circuit switched by the switching circuit and to provide at least a portion of the captured energy to bias the control circuit, wherein the switching circuit includes a first snubbing capacitor and a first current limiting device, wherein the switching circuit is configured to switch the first current limiting device into circuit when the first snubbing capacitor is reset.

Neither Guerrera nor Dan-Harry disclose or suggest an AC switching circuit that includes a first snubbing capacitor in a first current limiting device, wherein the AC switching circuit is configured to switch the first current limiting device into circuit on the first snubbing capacitor is reset. As acknowledged by the Examiner, Guerrera fails to disclose such limitations. As a result, the Examiner attempts to additionally rely upon Dan-Harry and refers to Figure 2.

However, the circuit shown in Figure 2 of Dan-Harry is not even remotely relevant to the limitations of claim 47. The circuit shown in Figure 2 of Dan-Harry merely discloses a power conversion system in which an AC input is immediately rectified by bridge rectifier. Nowhere does Dan-Harry disclose a current limiting device that is switched into circuit when a snubbing capacitor is reset.

The Examiner has failed to establish a prima facie case of obviousness. The Examiner cannot even point to what he considers to be the current limiting device or where Dan-Harry allegedly switches the current-limiting device into circuit when a snubbing capacitor is reset. The Examiner merely makes the conclusory and unsupported statement that "Dan-Harry teaches utilization of the similar technique for current limiting device (figure 2)." (Office Action dated December 31, 2007, page 5).

The Examiner's Answer completely fails to even respond to Appellants' points regarding claims 47 and 53. (See Examiner's Answer, pages 8-9).

Accordingly, the rejection of claims 47 and 53 should be reversed. The rejection of claims 48-51, which depend from claim 47, should be reversed for at least the same reasons. The rejection of claims 54-59, which depend from claim 53, should be reversed for at least the same reasons.

B. Claims 50 and 57

Claim 50 depends from claim 47 and further recites that the AC switching circuit includes a second snubbing capacitor and a second current limiting device, wherein the AC switching circuit is configured to switch the first current limiting

device into circuit when the first snubbing capacitor is reset during a positive half cycle and wherein the AC switching circuit is configured to switch the second current limiting device into circuit when the second snubbing capacitor is reset during a negative half cycle.

Claim 57 depends from claim 53 and further recites that the switching circuit comprises an AC switching circuit including a second snubbing capacitor and a second current limiting device, wherein the switching circuit is configured to switch the first current limiting device into circuit when the first snubbing capacitor is reset during a positive half AC cycle and wherein the switching circuit is configured to switch the second current limiting device into circuit when the second snubbing capacitor is reset during a negative half AC cycle.

Neither Guerrera nor Dan-Harry disclose an AC switching circuit that includes a second snubbing capacitor and a second current limiting device, wherein the AC switching circuit is configured to switch the first current limiting device into circuit when the first snubbing capacitor is reset during a positive half cycle and wherein the AC switching circuit is configured to switch the second current limiting device into circuit when the second snubbing capacitor is reset during a negative half cycle. An acknowledgment that Guerrera fails to disclose such, the Examiner attempts to additionally rely upon Dan-Harry.

However, Dan-Harry clearly does not satisfy the deficiencies of Guerrera. Dan-Harry clearly does not disclose and AC switching circuit that is configured to switch the second current limiting device into circuit when the second snubbing capacitor is reset during a negative half cycle. This can't be more clear from the simple fact that the circuit disclosed by Dan-Harry immediately converts any AC input into a DC current with a bridge rectifier. How can Dan-Harry possibly switch a first current limiting device into circuit when a first snubbing capacitor is reset DURING A POSITIVE HALF CYCLE when Dan-Harry merely operates on a direct current? How can Dan-Harry possibly switch a second current limiting device into circuit when a second snubbing capacitor is reset DURING A NEGATIVE HALF CYCLE when Dan-Harry merely operates on a direct current?

The Examiner's Answer completely fails to even respond to Appellants' points regarding claims 50 and 57. (See Examiner's Answer, pages 8-9).

Accordingly, the rejection of claims 50 and 57 should be reversed for this additional reason.

C. Claim 56

Claim 56 depend from claim 53 and recites that the switching circuit includes a first transistor and a second transistor, wherein the first transistor and the second transistor had source terminals connected in common.

As noted above with respect to the rejection of claim 52, Guerrera fails to disclose first and second transistors having source terminals connected in common. In direct contrast, Guerrera requires that its switching devices be connected source to drain. For example, switching devices 40 and 46 of Figure 2 are connected source to drain. Switching devices 40 and 46 do not have source terminals connected in common. Dan-Harry does not satisfy this deficiency.

The Examiner's Answer completely fails to even address Appellants' points regarding claim 56. (See Examiner's Answer, pages 8-9).

Accordingly, the rejection of claim 56 should be reversed.

Conclusion

In view of the foregoing, the Appellants submit that: **(1)** claims 1, 7 and 52 are not properly rejected under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 5,923,152 (Guerrera) and are therefore patentable; **(2)** claims 31, 34, 35, 37-40 and 43 45 are not properly rejected under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 6,0550161 (Church)and are therefore patentable; **(3)** claims 8-9 and 46 are not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,923,152 (Guerrera) and are therefore patentable; **(4)** claims 17-20 are not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,923,152 (Guerrera) and are therefore

patentable; **(5)** claims 32-33, 36 and 41-42 are not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,0550161 (Church) and are therefore patentable; and **(6)** claims 47-51 and 53-58 are not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,923,152 (Guerrera) and US Patent No. 5,485,365 (Dan-Harry) and are therefore patentable. Accordingly, Appellants respectfully request that the Board reverse all claim rejections and indicate that a Notice of Allowance respecting all pending claims should be issued.

Summary

For the foregoing, it is submitted that the Examiner's rejections are erroneous, and reversal of the rejections is respectfully requested.

Dated this 5th day of November, 2008.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Previously Presented) An apparatus comprising:

an AC switching circuit;

a control circuit coupled to the AC switching circuit; and

a biasing snubber circuit coupled to the switching circuit and the control circuit to capture energy from a circuit switched by the switching circuit and to provide at least a portion of the captured energy to bias the control circuit.

7. (Previously Presented) The apparatus of claim 1 wherein the biasing snubber circuit comprises first electrical circuitry to provide charge for storage on a charge storage device during a first phase of an AC flow and second electrical circuitry to provide charge for storage on the charge storage device during a second phase of the AC flow.

8. (Previously Presented) The apparatus of claim 1 wherein the AC switching circuit comprises:

a first Field Effect Transistor (FET) having a first source, a first gate and a first drain;

a second FET having a second drain, a second source coupled to the first source and a second gate coupled to the first gate;

a first diode having a first anode coupled to the first source and a first cathode coupled to the first drain; and

a second diode having a second anode coupled to the second source and a second cathode coupled to the second drain.

9. (Previously Presented) The apparatus of claim 1 wherein the AC switching circuit comprises:

a first Field Effect Transistor (FET) having a first source, a first gate and a first drain;

a second FET having a second drain, a second source coupled to the first source and a second gate coupled to the first gate;

a first diode having a first cathode coupled to the first source and a first anode coupled to the first drain; and

a second diode having a second cathode coupled to the second source and a second anode coupled to the second drain.

10. (Previously Presented) The apparatus of claim 1 wherein the biasing snubber circuit comprises:

a first and second series resistor/capacitor pair correspondingly coupled to a first and a second drain of a first and a second Field Effect Transistor (FET) of the AC switching circuit;

a first diode coupled between a first source of the first FET and the first series resistor/capacitor pair, an anode of the first diode coupled to the first source and a cathode of the first diode coupled to the first series resistor/capacitor pair;

a second diode coupled between a second source of the second FET and the second resistor/capacitor pair, an anode of the second diode coupled to the second source and a cathode of the second diode coupled to the second series resistor/capacitor pair;

a third diode, an anode of the third diode coupled to the cathode of the first diode;

a fourth diode, an anode of the fourth diode coupled to the cathode of the second diode and a cathode of the fourth diode coupled to a cathode of the third diode; and

a capacitor coupled between coupled cathodes of the third and fourth diodes and the first and second sources, the first and second sources coupled together.

11. (Previously Presented) The apparatus of claim 1 wherein the biasing snubber circuit comprises:

a first terminal of a first capacitor and a first terminal of a second capacitor correspondingly coupled to a first and a second drain of a first and a second Field Effect Transistor (FET) of the AC switching circuit;

a first series linear-device/diode pair coupled between a second terminal of the first capacitor and a first source of the first FET;

a second series linear-element/diode pair coupled between a second terminal of the second capacitor and a second source of the second FET;

a first diode, wherein an anode of the first diode is coupled to the second terminal of the first capacitor;

a second diode, wherein an anode of the second diode is coupled to the second terminal of the second capacitor and a cathode of the second diode is coupled to a cathode of the first diode; and

a bias capacitor coupled between coupled cathodes of the first and second diodes and the first and second sources, the first and second sources coupled together.

12. (original) The apparatus of claim 11 wherein the first series linear-device/diode pair comprises a first resistor and a third diode and the second series linear-device/diode pair comprises a second resistor and a fourth diode.

13. (original) The apparatus of claim 11 wherein the first series linear-device/diode pair comprises a first inductor and a third diode and the second series linear-device/diode pair comprises a second inductor and a fourth diode.

14. (original) The apparatus of claim 13 wherein anodes of third and fourth diodes are coupled to the coupled sources and cathodes of the third and fourth diodes are correspondingly coupled to the first and the second inductors.

15. (original) The apparatus of claim 11 wherein the biasing snubber circuit further comprises:

a first terminal of a first resistor and a first terminal of a second resistor correspondingly coupled to the anode of the first diode and the anode of the second diode;

a full wave diode bridge rectifier having four bridge diodes, wherein a first terminal of the full wave bridge rectifier coupled to the bias capacitor, a second

terminal of the full wave bridge rectifier coupled to a second terminal of the first resistor, a third terminal of the full wave bridge rectifier coupled to a second terminal of the second resistor and a fourth terminal of the full wave bridge rectifier coupled to a ground node, the ground node comprising the coupled first and second sources.

16. (original) The apparatus of claim 11 wherein the biasing snubber circuit further comprises:

a first resistor wherein a first terminal of the first resistor is coupled to the first terminal of the first capacitor and a second terminal of the first resistor is coupled to the second terminal of the first capacitor; and

a second resistor wherein a first terminal of the second resistor is coupled to the first terminal of the second capacitor and a second terminal of the second resistor is coupled to the second terminal of the second capacitor.

17. (Previously Presented) The apparatus of claim 1 further comprising a load coupled to the AC switching circuit.

18. (original) The apparatus of claim 17 wherein the load comprises an inductive heating device.

19. (original) The apparatus of claim 17 wherein the load comprises a single phase induction motor.

20. (original) The apparatus of claim 17 wherein the load comprises a fuser.

31. (previously presented) A snubber circuit comprising:

a first energy storage device;

circuitry coupled to the first energy storage device to facilitate capturing, by the first energy storage device, energy of a switching circuit and to facilitate resetting of the first energy storage device; and

a second energy storage device coupled to the first energy storage device to store the captured energy and to provide at least a portion of the captured energy to a control circuit.

32. (original) The snubber circuit of claim 31 wherein the switching circuit is a DC switching circuit.

33. (original) The snubber circuit of claim 31 wherein the switching circuit is an AC switching circuit.

34. (original) The snubber circuit of claim 31 wherein the circuitry comprises a plurality of diodes.

35. (Previously Presented) The snubber circuit of claim 31 wherein the second energy storage device provides a bias source for the control circuit of the switching circuit.

36. (original) The snubber circuit of claim 31 wherein the second energy storage device provides a bias source for a fan.

37. (original) The snubber circuit of claim 31 wherein at least one of the first and second energy storage devices comprises a capacitor.

38. (original) The snubber circuit of claim 31 wherein at least one of the first and second energy storage devices comprises an inductor.

39. (Previously presented) A method of supplying power to a control circuit comprising:

capturing energy of a switching circuit in a first energy storage device;

providing at least a portion of the captured energy in the first energy storage device to a second energy storage device; and

providing at least a portion of energy stored on the second energy storage device to power the control circuit.

40. (original) The method of claim 39 wherein the first circuit comprises a control circuit for the switching circuit.

41. (original) The method of claim 39 wherein the switching circuit comprises an AC switching circuit.

42. (original) The method of claim 39 wherein the switching circuit comprises a DC switching circuit.

43. (original) A snubber circuit to power a first circuit comprising:

means for capturing energy of a switching circuit in a first energy storage device;

means for providing at least a portion of the captured energy in the first energy storage device to a second energy storage device; and

means for providing at least a portion of energy stored on the second energy storage device to power the first circuit.

44. (original) The snubber circuit of claim 43 wherein at least one of the first energy storage device and the second energy storage device comprise capacitors.

45. (original) The snubber circuit of claim 43 wherein the first circuit comprises a control circuit for controlling the switching circuit.

46. (Previously Presented) The apparatus of claim 1, wherein the AC switching circuit includes a first transistor and a second transistor, the first transistor and the second transistor having source terminals connected in common.

47. (Previously Presented) The apparatus of claim 1, wherein the AC switching circuit includes a first snubbing capacitor and a first current limiting device, wherein the AC switching circuit is configured to switch the first current limiting device into circuit when the first snubbing capacitor is reset.

48. (Previously Presented) The apparatus of claim 47, wherein the first current limiting device comprises a resistor.

49. (Previously Presented) The apparatus of claim 47, wherein the first current limiting device comprises an inductor.

50. (Previously Presented) The apparatus of claim 47, wherein the AC switching circuit includes a second snubbing capacitor and a second current limiting device, wherein the AC switching circuit is configured to switch the first current limiting device into circuit when the first snubbing capacitor is reset during a positive half cycle and wherein the AC switching circuit is configured to switch the second current limiting device into circuit when the second snubbing capacitor is reset during a negative half cycle.

51. (Previously Presented) The apparatus of claim 47, wherein the first current limiting device comprises an inductor and wherein the AC switching circuit is configured to pump charge during snubbing of current and during reset of the first snubbing capacitor.

52. (Previously Presented) An apparatus comprising:

a switching circuit;

a control circuit coupled to the AC switching circuit; and

a biasing snubber circuit coupled to the switching circuit and the control circuit to capture energy from a circuit switched by the switching circuit and to provide at least a portion of the captured energy to bias the control circuit, wherein

the switching circuit includes a first transistor and a second transistor, the first transistor and the second transistor having source terminals connected in common.

53. (Previously Presented) An apparatus comprising:

a switching circuit;

a control circuit coupled to the switching circuit; and

a biasing snubber circuit coupled to the switching circuit and the control circuit to capture energy from a circuit switched by the switching circuit and to provide at least a portion of the captured energy to bias the control circuit, wherein the switching circuit includes a first snubbing capacitor and a first current limiting device, wherein the switching circuit is configured to switch the first current limiting device into circuit when the first snubbing capacitor is reset.

54. (Previously Presented) The apparatus of claim 53, wherein the first current limiting device comprises a resistor.

55. (Previously Presented) The apparatus of claim 53, wherein the first current limiting device comprises an inductor.

56. (Previously Presented) The apparatus of claim 53, wherein the switching circuit includes a first transistor and a second transistor, the first transistor and the second transistor having source terminals connected in common.

57. (Previously Presented) The apparatus of claim 53, wherein the switching circuit comprises an AC switching circuit including a second snubbing capacitor and a second current limiting device, wherein the switching circuit is configured to switch the first current limiting device into circuit when the first snubbing capacitor is reset during a positive half AC cycle and wherein the switching circuit is configured to switch the second current limiting device into circuit when the second snubbing capacitor is reset during a negative half AC cycle.

58. (Previously Presented) The apparatus of claim 53, wherein the first current limiting device comprises an inductor and wherein the switching circuit is configured to pump charge during snubbing of current and during reset of the first snubbing capacitor.

59. (Previously Presented) The apparatus of claim 53, wherein the switching circuit is configured to supply initial power to the control circuit.